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October 1999

AgMAS Project Research Report 1999-04

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Abstract

Mail surveys are a very popular instrument for researchers as well as government agencies and commercial firms to obtain information about farmers. A large percentage of farmers do not respond to these mail surveys. To gain insight into why farmers do not respond and their preferences regarding mail surveys, farmers who did not respond to a mail survey were interviewed. From our field study it appears that a large proportion does not even read the questionnaire. Furthermore, the period in which the survey is sent along with the form and amount of compensation, the sender of the questionnaire, and the length of the questionnaire has a crucial impact on the willingness to participate.

Introduction

“Too long, too detailed, bad time; got too much to do; not a days goes by without getting something: just worn me out.”

“Why should I spend even 1 minute? What’s the benefit to me?”

“Make as simple as possible. Go after 3 or 4 points at most. Do not ask questions that would require farmers to go to their records”

-----Responses of farmers about mail surveys (August 1999)

Agricultural economists have long used mail surveys as a data collection instrument. Recent examples include Hayenga, Hobbs, and Thilmany. The widespread use of mail surveys can be attributed partly to the advantages of economy and convenience inherent in such mail surveys. Surveying farmers through the mail on a nation-wide basis can be cost efficient when the surveys effectively generate a representative response. The economies, however, are negated by the failure of researchers to consider factors that stimulate response rates and completeness. Although mail surveys are widely used in agricultural economic research, the problem of low response rates has seldom been addressed.¹ A low response rate affects the mail survey’s ability to produce high quality data. A common problem is the lack of a representative sample due to a low response. Related to the latter is the effect of “selection by the respondent.” Respondents who are interested in the subject of the questionnaire may respond relatively more often than respondents who are not involved in the subject. In this case, non-respondents differ from respondents, resulting in biased survey results.

This research note describes an exploration of factors influencing response rates of mail surveys sent to US farmers. First, the mail survey as a technique to obtain primary data is briefly discussed, followed by a short literature review of techniques used to increase mail survey response rate. Next, the research design is described and results are discussed. Finally, results are summarized and some recommendations are made for improving response rates of mail surveys sent to farmers.

Factors Influencing Response Rate

In agricultural economic research, theory is often tested using secondary data, that is, data that have been gathered for some other purpose but are applicable to the study. The primary advantage of secondary data is the low cost. Moreover, much of the secondary data are “instant” since they already exist and merely need to be discovered. On the other hand, the collection of primary data (i.e., data that originate with the specific research undertaken) can take a long time and can be very expensive. However, the advantages of secondary data over primary data come at a cost. Secondary data might

¹ A notable exception is the work of Buse (1973).

not fit the researcher's study because of differences in definitions. Furthermore, secondary data may not be available, particularly for research that involves farmers' opinions, perceptions, and attitudes.

Collecting primary data to validate theoretical models and concepts can be done in four ways: 1) by questioning farmers in a mail survey, 2) by personal interviews, 3) by observing their selected activities and 4) by conducting experiments with them. In this research note, we focus on the method most widely used in agricultural economics: the mail survey. Surveys can be conducted through personal interviews, telephone interviews, or mail questionnaires. Table 1 provides a short overview of the advantages and disadvantages of mail surveys.

In the marketing and psychology research literature several factors have been identified that influence the response rate of mail surveys. Childers and Ferrell found that response rates decrease with an increase in the questionnaire's length. Moreover, they found that the length of a questionnaire, as perceived by the respondent, is multidimensional. The length of the questionnaire is a function of the number of questions, number of pages, and the size of the pages. These findings are in line with the finding of Harvey that layout is important. A cramped layout with little space on the page is less attractive than a longer one which has ample space for responses. Hornik and Brennan found a positive relation between response rate and direct rewards (monetary and non-monetary). Hansen indicated that although a monetary inducement improves the response rate, it does not necessarily improve the accuracy of the results. Buse (1973) and Wolfe and Treiman showed a large positive effect of persistence (repeated contacts) on response rate. Childers, Pride, and Ferrell showed that emphasizing how the person's input will help others in the cover letter raises the response rate. Jones and Lang showed that hiding the identification of the sponsor increases the response rate. Interesting to note is that this finding was based on commercial sponsors. One might argue that public sponsors and non-for-profit sponsors would have a positive influence on the response rate. Heiberlein and Baumgartner found support for this claim. Other factors that are related to response rate are preliminary notification, provision of return envelope, personalization (e.g., hand-addressed envelope and personal signature), promise of anonymity, and specification of a deadline for returning (Yammarino, Skinner and Childers). Herberlein and Baumgartner were able to explain 51% of the variance in final response through the number of respondent contacts (preliminary and follow up) and the saliency of the survey topic. Recently, Yammarino, Skinner and Childers found that the type of subjects sampled moderates the effect of above-mentioned factors (e.g., consumers vs. managers in industry).

The above mentioned studies exclusively focus on consumers. An exception is Buse (1973) who reports that a personal letter and persistence in the form of several follow-ups resulted in a high response rate of farmers in Wisconsin.²

² See, Brooks et al. and Buse (1975) for a further discussion on personalization and persistence.

In this study, the primary interest is farmers. The level of influence of the factors mentioned above might be different for farmers and other factors, such as the time of year the questionnaire is sent, might play a role. One would expect that the response rate of farmers, in particular crop farmers, is lower in times when there is fieldwork to be done than when there is relatively less work.

In the above mentioned studies, the response rate was the dependent variable and the independent variables were the manipulated factors designed to affect response rates. Rather than using different mail survey designs to investigate the response rate, farmers were asked what features of mail questionnaires are related to their willingness to complete the survey. These questions were asked in a telephone interview to farmers that did not respond to a mail questionnaire that they received a few weeks earlier.

Research Design and Results

A mail survey was developed that dealt with how farmers choose among market advisory services and how they use these services. The mail survey was part of a project that was motivated by the expansion in the use of market advisory services by farmers in the US. Previously, information about how market advisory services perform was limited. A research program was developed to provide information about the performance of these market advisory services.³

The questionnaire was designed taking into account the insights of the survey literature. That is, an in-person pre-test was done with a group of 15 farmers, in which they were asked to complete a questionnaire and to indicate any ambiguity or other difficulty they experienced in responding to the questions, as well as any suggestions they deemed appropriate. Based on the feedback received from the farmers, some questions were eliminated, others were modified, and additional items were developed.

After the pre-test, a survey was designed based on the literature reviewed above. Farmers who returned the survey were eligible to win a \$100 cash prize. The envelope revealed that it was a questionnaire from a University and a return, postage paid envelope was included. The cover letter was personalized, printed with University letterhead, and indicated that it was a University study about agricultural market advisory services that should require about 20 minutes for completion. The questionnaires were printed in booklet form with 12 letter sized pages containing 47 questions. The cover letter indicated that the information provided was strictly confidential and that respondents could call one of the researchers if they had any questions about the survey (the researchers' names and telephone numbers were given in the cover letter).

The questionnaires were sent in the second week of June 1999 to 100 randomly drawn crop farmers across the Midwest, Great Plains, and South East regions of the US. The sample was drawn from directories kept by a US firm that delivers agricultural market information and advisory services via satellite. In general, the customers of this

³ More information about this project can be found at the homepage of the Agricultural Market Advisory Project (AgMas) at <http://www.aces.uiuc.edu/~agmas/>

firm represent relatively large-scale commercial farmers. After two weeks, a reminder was sent to the non-respondents, including a new copy of the questionnaire. Acceptance of surveys was concluded in the second week of July 1999. By that time, only 12 questionnaires were returned. The response rate was lower than the typical response rates of 20% to 30% reported in the survey literature (Yammarino, Skinner and Childers).

In order to gain insight into why farmers did not respond, a telephone interview was conducted with all 88 non-responding farmers in the first week of August 1999. Of these 88 farmers, 55 completed the telephone interview. Of the 33 farmers who did not complete the telephone interview, 15 refused to participate and 18 were not available. Tables 2 and 3 summarize the questions asked in the telephone interview and the responses.

As shown in Table 2, a large percentage of the farmers did not scan or read the mail questionnaire. The fact that only 25% of the respondents scanned or read the mail survey can be partially attributed to the time of mailing the survey. June is one of the worst months for receiving a mail survey, with January and February being the preferred months for receiving questionnaires. This timing preference is overwhelming, with 63% of the farmers indicating that January or February are the best months to complete a survey. The next best month for completing a survey, December, was cited by only 8% of the respondents.

Results for the amount of time respondents are willing to spend on a survey are shown in Tables 3 and 4. The telephone interview indicated that farmers are willing to spend, on average, a maximum of 13 minutes completing a mail survey. Forty-five percent of the respondents were not willing to spend more than 10 minutes and 35% no more than 5 minutes completing a mail survey. The mail survey used in this study required about 20 minutes to complete, contributing to the low response rate.

Compensation results also are reported in Tables 3 and 4. About half of the farmers interviewed expected to be compensated for completing a survey. Money was the preferred compensation, followed by gifts and coupons. The appropriate compensation varied between \$1 and \$50, with an average of \$15 and a median of \$10. One-third of the farmers identified a compensation of \$15 or more.

The interview results indicate that the appropriate compensation depends on the length of the survey and the organization that conducts the survey. Farmers did not expect to receive a (high) compensation from a University or government organization, but would expect compensation from private companies. These results refine the findings of Jones and Lang suggesting that hiding the sponsor's identity increases the response rate.

During the telephone interview the farmers had the opportunity to provide suggestions that would make mail surveys more attractive to them. A suggestion that was often mentioned was that mail surveys should not include questions that require farmers to consult their records. Surveys that consist of questions that require rating and checking boxes are preferred over open-ended questions.

Summary and Implications

The results of this study have important implications for survey research in agricultural economics and related fields. First, a relatively brief time window exists for effectively conducting mail surveys of crop farmers. About two-thirds of the farmers indicated that the best months are limited to January and February. While this accords with common sense, the restrictive nature of this time window raises serious questions about the usefulness of surveying crop farmers outside of this time period. If researchers have the choice, a survey should be targeted for delivery in early winter. If researchers must conduct a survey in other months, a lower response rate should be expected and researchers need to carefully consider the bias this may inject into survey results. Alternatives for dealing with the lower response rate may need to be considered, such as monetary compensation.

Second, farmers are willing to spend relatively little time completing mail surveys. Without compensation, the majority of crop farmers will not spend more than about ten minutes. Over one-third are unwilling to spend more than five minutes! This strongly suggests that lengthy surveys (sent without compensation, as is the typical practice in agricultural economics) will result in low response rates and may be plagued by related response biases. Anecdotal evidence suggests lengthy surveys are the norm in agricultural economics survey research. Surveys need to be short and tightly-focused if they are to be effective instruments in measuring the intended constructs.

Third, cash compensation may be required in order to assure desired response rates from crop farmers. The requirement for compensation is related to the length of the questionnaire and whether it is conducted by a private or public entity. If cash compensation is included, researchers should expect to pay on the order of \$10-\$15 per completed survey. While this is a small amount viewed on an individual basis, it could wreak havoc with project budgets in a large nationwide survey.

Fourth, the results of this study are instructive with regard to the negative aspects of the “information revolution.” While advances in computer and communication technology foster the production and analysis of data, there is still a basic constraint on the production of that data. Many of the comments by farmers in the telephone interview appeared to be a plea for relief from the flood of surveys that inundate them on a daily basis. In the future, researchers need to carefully consider this issue when designing research projects requiring survey data.

Finally, the survey results suggest that crop farmers are more willing to answer questions not requiring them to consult records for factual information. This places a clear restriction on the type of data that might be successfully solicited from crop farmers. Data gathering procedures that combine secondary accounting data (e.g., farm records already available) with survey data seems an interesting avenue to explore in futures research.

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Table 1 Advantages and Disadvantages of Mail Surveys

Advantages	Disadvantages
Not subject to interviewer bias	Cannot control speed of response
Respondents work at their own pace	Researchers cannot explain ambiguous questions
Can ensure anonymity of respondents	Does not allow probing with open-ended questions
Wide distribution possible	Difficult to change sequence of questions
Good for personal, sensitive questions	Sequence bias: respondents can view entire questionnaire as they respond
Least expensive	

Table 2. Results of Interviews Conducted to Farmers who did not Respond to Mail Survey

Questions		Answers		
Did you read or scan the questionnaire before deciding not to complete it?	Yes	25%	No	75%
What months are a good time for you to receive a survey (open-ended question)? <i>Respondents could mention two months; the percentage refers to number of times that the particular month was mentioned</i>	January	33%	November	6%
	February	30%	December	8%
	March	4%	Winter (Dec-Mar)	14%
	July	2%	Never	4%
	August	1%		
What months are a bad time for you to receive a survey (open-ended question)? <i>Respondents could mention two months; the percentage refers to number of times that the particular month was mentioned</i>	March	1%	November	1%
	April	5%	December	1%
	May	9%	Spring	5%
	June	12%	Summer	4%
	July	8%	Fall	26%
	August	7%	Planting/Harvest	27%
	September	4%	Never	6%
	October	3%		

Table 3. Farmers' Preferences Regarding Survey Length and Form of Compensation

Questions		Answers		
What is the maximum number of minutes you are willing to spend on a questionnaire?	13.45 (mean)	13 (median)	11.52 (st.dev)	
Do you expect compensation?	Yes	52%	No	48%
What type of compensation do you expect (open-ended question)?	Money 77%	Gifts/Coupons 14%	Others 9%	
What dollar amount of compensation do you expect (open-ended question)?	\$15.13 (mean)	\$10 (median)	\$13 (st.dev.)	
What are the conditions for compensation (open-ended question)?	Length 61%	Whether it's for non-profit or profit organisation 16%	Depends on for who 22%	

Table 4. The Fequency Distribution of Maximum Amount of Minutes Willing to Spend on a Mail Survey and the Compensation Desired

Maximum minutes	Percentage	Cumulative Percentage	Desired \$	Percentage	Cumulative Percentage
0	8.2	8.2	1	6.7	6.7
2	6.1	14.3	3	6.7	13.3
3	2	16.3	4	6.7	20
5	18.4	34.7	5	6.7	26.7
8	4.1	38.8	8	13.3	40
10	6.1	44.9	10	20	60
13	8.2	53.1	15	6.7	66.7
15	20.4	73.5	18	6.7	73.3
18	4.1	77.6	25	13.3	86.7
20	8.2	85.7	35	6.7	93.3
23	4.1	89.8	50	6.7	100
30	6.1	95.9			
45	2	98			
60	2	100			